UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY

PRAIRIE ISLAND NUCLEAR GENERATING PLANT DOCKET NO. 50-282
50-306

REQUEST FOR AMENDMENT TO
OPERATING LICENSES DPR-42 & DPR-60

LICENSE AMENDMENT REQUEST DATED October 3, 1994

Northern States Power Company, a Minnesota corporation, requests authorization for changes to Appendix A of the Prairie Island Operating License as shown on the attachments labeled Exhibits A, B, and C. Exhibit A describes the proposed changes, describes the reasons for the changes, and contains a significant hazards evaluation. Exhibits B and C are copies of pages of the Prairie Island Technical Specifications incorporating the proposed changes.

This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By Michael D Wadley
Michael D Wadley
Site General Manager
Prairie Island Nuclear Generating Plant

On this 3rd day of October 1994 before me a notary public in and for said County, personally appeared Michael D Wadley, Site General Manager, Prairie Island Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Northern States Power Company, that he knows the contents thereof, and that to the best of his knowledge, information, and belief the statements made in it are true and that it is not interposed for delay.

Marcia K LaCore

MARCIA K. LaCORE
NOTARY PUBLIC-MINNESOTA
HENNEPIN COUNTY
My Commission Expires Jan. 31, 2000

Exhibit A

Prairie Island Nuclear Generating Plant

License Amendment Request Dated October 3, 1994

Evaluation of Proposed Changes to the
Technical Specifications Appendix A of
Operating License DPR-42 and DPR-60

Pursuant to 10 CFR Part 50, Sections 50.59 and 50.90, the holders of Operating Licenses DPR-42 and DPR-60 hereby propose the following changes to Appendix A, Technical Specifications:

I. Modify the Emergency Diesel Generator Load Test Requirements

Proposed Changes

Change the words in the sentence contained in Technical Specification 4.6.A.3.c from "For each unit, demonstrate full-load carrying capability for an interval of not less than 24 hours, of which 2 hours are at a load equal to 105 to 110 percent of the continuous rating of the emergency diesel generator, and 22 hours are at a load equal to 90 to 100 percent of its continuous rating." to "For each diesel generator, demonstrate full-load carrying capability for an interval of not less than 24 hours, of which at least 2 hours are at an indicated load equal to 103 to 110 percent of the continuous rating of the emergency diesel generator, and the remainder of the 24 hours are at an indicated load of greater than or equal to 92 percent of its continuous rating."

Add the following sentence to the end of Technical Specification 4.6.A.3.c "Momentary transients outside the load ranges do not invalidate this test."

Reasons for Changes

The specification is being corrected to refer to each "diesel generator" rather than each "unit".

Indicated load (92%) is being specified for the minimum load value in order to account for load indication uncertainties, not to exceed 2%. Use of indicated load greater than or equal to 92% ensures, with the maximum indication uncertainty of 2%, that the test load will be equal to the Standard Technical Specifications value of 90%. This test load exceeds the Prairie Island highest anticipated event load and is the current Technical Specifications test value.

Removing the upper band on the 22-hour test range simplifies accounting of test time by allowing use of the time the engine load is above 100 percent for the 22-hour portion of the test.

The primary concern being addressed by this license amendment request is a concern with the potential overloading of the Unit 1 emergency diesel generators. Generic Letter 88-15 dated September 12, 1988 entitled "Electric Power Systems -Inadequate Control over Design Processes" addresses the problem of diesel generator loading in excess of design rating. It discusses a situation where a plant's diesel generator technical specifications required testing at least once every 18 months for 60 minutes at a load equal to or greater than 3000 kW. However, the manufacturer required that the diesel be subjected to a special maintenance inspection to verify that the diesel has not been damaged if the time of operation between 3000 and 3300 kW exceeds 30 minutes. The concern is that testing beyond the manufacturer's design limit could jeopardize the diesel generator capacity to reliably perform its intended safety function during an event in which loss of offsite power occurs.

Prairie Island's Unit 1 emergency diesel generators have a 30-minute rating between 3000 and 3250 kW. The current Technical Specification requires that each diesel generator operate once each 18 months for at least two hours while loaded to 105 to 110 percent. This creates a situation where a diesel generator could easily be operated above the 3000 kW level inadvertently. 3000 kW represents a 109.1% load below which the machine must be kept. Our potential instrumentation error is ± 2%, therefore to remain below a load of 109.1% the machine must be maintained at or below 107.1%. On the other hand, to ensure that we meet the specification range of 105 to 110%, the machine must be at or above 107% (accounting for a potential 2% instrumentation error). The test is performed with the generator connected to the system grid and the changing load demand of the system causes the machine to fluctuate enough that it cannot be maintained within a band of 107 to 107.1%. By changing the range to an indicated range of 103 to 110%, the effective range is increased by 4% at the low end. This would allow us a sufficient band to perform the test.

Allowing momentary transients outside of the test band is consistent with Standard Technical Specifications and allows the test to be conducted with the generator connected to the system grid; in which configuration the engine load varies slightly with changing system grid conditions.

Safety Evaluation and Determination of Significant Hazards Considerations

The proposed changes to the Operating License has been evaluated to determine whether it constitutes a significant hazards consideration as required by 10 CFR Part 50, Section 50.91 using the standards provided in Section 50.92. This analysis is provided below:

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   Changing the specification from "unit" to "diesel generator" does not

change the intent of the specification, it merely clarifies the original intent and therefore cannot involve a change in the probability or consequences of an accident.

Changing the 22-hour lower range limit from a load of 90% to an indicated load of 92% removes possible ambiguity from the specification but does not change the actual requirement, therefore it cannot involve a change in the probability or consequences of an accident.

Removing the 22-hour upper range limit from the specification does not reduce the conservatism of the test since operating at a higher load provides more evidence of the ability of the machine to carry the accident loads. For this reason, this change will not involve any increase in the consequences of an accident. Also, increasing the load at which the diesel generator is tested cannot affect the probability of an accident.

The NRC staff has pointed out, in Generic Letter 88-15, the hazards of testing the Diesel Generator at a load greater than the design rating. The proposed change is intended to ensure that the design rating is not inadvertently exceeded. Since the recent installation of two additional emergency diesel generators, the highest anticipated event loads are: Unit 1 - 2414 kW, Unit 2 - 3813 kW. For these diesel generators, then, 103% of the continuous ratings:

* Unit 1, 103% of 2750 kW (continuous rating) = 2832.5 kW represents 117.3% of the highest anticipated event load and;
* Unit 2, 103% of 5400 kW (continuous rating) = 5562 kW represents 145.9% of the highest anticipated event load.

A test load of 103%, therefore, would still be significantly greater than the load required during accident conditions. Since an adequate level of electrical load carrying capacity of the diesel generators (and thus their accident mitigating functions) would still be demonstrated by the surveillance test, the consequences of an accident would be unaffected by the proposed change. The probability of occurrence of a previously evaluated accident would be unaffected since testing a diesel generator at a load between 103 and 110 percent instead of at a load between 105 and 110 percent could not cause or contribute to the initiation of an accident. For these reasons, this change could have no effect on the probability or consequences of an accident previously evaluated.

Allowing momentary transients outside of the test band does not affect the conduct of the test, it merely allows momentary swings outside the specified band to not invalidate the test. Not allowing momentary transients would not prevent them, it would only require conducting the test longer until the specified time period was achieved without moving outside the band. Since the machine will not be operated any differently, this specification change cannot affect the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

Changing the specification from "unit" to "diesel generator" does not change the intent of the specification, it merely clarifies the original intent and therefore cannot create the possibility of a new or different kind of accident.

Changing the 22-hour lower range limit from a load of 90% to an indicated load of 92% removes possible ambiguity from the specification but does not change the actual requirement.

Removing the 22-hour upper range limit from the specification does not change the manner in which the surveillance is performed. It only affects whether the time spent above 100% load can be counted toward 22 hours in the 22-hour portion of the test. This change would not allow any new modes of operation nor does it allow any modification to the plant.

As stated above, testing a diesel generator at a load between 103 and 110% instead of between 105 and 110% could not cause or contribute to the initiation of an accident.

Allowing momentary transients outside of the test band does not affect the conduct of the test, it merely allows momentary swings outside the specified band to not invalidate the test. Not allowing momentary transients would not prevent them, it would only require conducting the test longer until the specified time period was achieved without moving outside the band.

Therefore, for these reasons, operation of the facility in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

3. The proposed amendment will not involve a significant reduction in the margin of safety.

Changing the specification from "unit" to "diesel generator" does not change the intent of the specification, it merely clarifies the original intent and therefore cannot affect the margin of safety.

Changing the 22-hour lower range limit from a load of 90% to an indicated load of 92% removes possible ambiguity from the specification but does not change the actual requirement and therefore cannot affect the margin of safety.

The margin of safety is not affected by removal of the 22-hour upper range limit on the operation of the diesel generators during surveillance testing since the margin of safety is related to the magnitude of the accident loads and the maximum capacity of the

machine to carry load and this margin would be unaffected by this change.

The capacity of each diesel generator to carry electrical load can not be diminished by being tested at a lower load. Also, load testing to less than 105% but more than 103% does not lessen the confidence in the ability of the diesel generators to carry adequate load for this facility since these diesel generators have significantly greater load capacity than required by Standard Review Plan guidance in this regard (the guidance allows peak accident load up to 100% of the continuous rating versus Unit 1 diesel generators peak accident load of 87.8% and Unit 2 diesel generators peak accident load of 70.6%). Therefore, this change will not involve a significant reduction in the margin of safety.

Allowing momentary transients outside of the test band does not affect the conduct of the test, it merely allows momentary swings outside the specified band to not invalidate the test. Not allowing momentary transients would not prevent them, it would only require conducting the test longer until the specified time period was achieved without moving outside the band. Since the machine will not be operated any differently per the new specification, the margin of safety is unaffected.

Based on the reasons discussed above, we have concluded that the proposed change does not involve a significant hazards consideration.

II. Rephrase Various Emergency Diesel Generator Test Requirements

Proposed Changes

A. Change the first sentence of Technical Specification 4.6.A.1.e from "Verify the diesel generator can start and gradually accelerate to synchronous speed with generator voltage and frequency at 4160 ± 420 volts and 60 ± 1.2 Hz" to "Verify the diesel generator can start and gradually accelerate. Verify the generator voltage and frequency can be adjusted to 4160 ± 420 volts and 60 ± 1.2 Hz".

B. 1. Change th .ds in the sentence contained in Technical Specificat. 4.6.A.1.e from ". . . should be conducted in accordance with the manufacturer's recommendations . . ." to ". . . should be conducted in consideration of the manufacturer's recommendations . . ."

2. Change the words in the sentence contained in Technical Specification 4.6.A.2.d from ". . . should be conducted in accordance with the manufacturer's recommendations . . ." to ". . . should be conducted from standby conditions in consideration of the manufacturer's recommendations . . ."

3. Change the words in the sentence contained in Technical Specification 4.6.A.3.b.2 from ". . . should be conducted in accordance with the manufacturer's recommendations . . ." to ". . . should be conducted in consideration of the manufacturer's recommendations . . ."

4. Change the words in the sentence contained in Technical Specification 4.6.A.3.a from ". . . a thorough inspection in accordance with procedures prepared in conjunction with the manufacturer's recommendations . . ." to ". . . a thorough inspection in accordance with procedures prepared in consideration of the manufacturer's recommendations . . ."

C. Relocate existing Technical Specification 4.6.A.3.e "During this test, operation of the emergency lighting system shall be ascertained" to become new Technical Specification 4.6.A.3.b.3.

D. Combine existing Technical Specifications 4.6.A.2.a "Verify the diesel generator starts and accelerates to at least synchronous speed in less than or equal to 10 seconds" and 4.6.A.2.b "Verify the generator voltage and frequency to be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal" to the following new specification 4.6.A.2.a "Verify the diesel generator starts and achieves generator voltage and frequency of 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal."

E. Relocate existing Technical Specification 4.6.A.3.b.4 "[For each unit, simulate a loss of offsite power in conjunction with a safety injection signal, and:]. . . Verify that the diesel generator system trips, except those for engine overspeed, ground fault, and generator differential current (Unit 2: except those for engine overspeed and generator differential current), are automatically bypassed" to become new Technical Specification 4.6.A.3.e "For each unit, simulate a safety injection signal and verify that the diesel generator system trips, except those for engine overspeed, ground fault, and generator differential current (Unit 2: except those for engine overspeed and generator differential current), are automatically bypassed."

F. Delete existing Technical Specification 4.6.A.3.b.3 "Verify that the auto-connected loads do not exceed 3000 kw (Unit 2: 5100 kW)."

Reasons for Changes

A. Technical Specification 4.6.A.1.e had been previously modified to allow monthly "slow starts" to avoid undue wear on the diesel generators during "fast starts". It was the intent of this change to allow the machine to accelerate to operating speed prior to field flashing the generator. Field flashing the generator prior to achieving operating speed is harmful to the generator and would partially defeat the purpose of utilizing "slow starts". However, the

wording of the specification suggests the generator is at voltage as it is being accelerated. That was not the intent and this proposed change is intended to clarify the test requirement.

B. The purpose for these three changes is to clarify the requirement that the diesel generator manufacturer recommendations be factored into the procedures for testing and inspection. We do not believe that it was intended that all manufacturer's recommendations be incorporated into our procedures without the use of our judgement based on the operational and maintenance experience at Prairie Island and throughout the industry. We must adapt all of the pertinent information to our situation in order to achieve low failure rates while balancing maintenance and testing benefits against the unavailability of the equipment during such maintenance and testing.

The use of the words "manufacturer's recommendations" in the current specification is the main indicator that we are to use the advice from the manufacturer as "recommendation" rather than "mandate". That informs us that the intent of "should be conducted in accordance with" and "should be conducted in consideration of" is to factor in the information which we receive from the manufacturer but we need to discriminately use all of the available information. For example, the manufacturer may recommend fast starts less frequently than our Technical Specification do, in which case we obviously will follow the Technical Specification requirements. Another example are recommended maintenance frequencies which are actually based on machines with a service use of 8760 hours per year. We need the latitude to judge the applicability of any of the manufacturer's recommendations to our particular situation.

Existing Specification 4.6.A.2.d states: "This test should be conducted in accordance with the manufacturer's recommendations regarding engine prelube and shutdown procedures where possible." We believe the machine should be started from standby conditions for the following reasons: it ensures the testing is consistent with normal plant conditions; testing with the engine too cold unnecessarily stresses the engine contrary to the guidance in Generic Letter 84-15, Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability; and testing with the engine above standby conditions may not conservatively test the engine's capability to start and accelerate to rated speed in less than 10 seconds.

We believe that the present words provide the necessary latitude to balance all of the inputs to the procedure development process but "in consideration of" clearly provides for prudent decision-making.

C. Technical Specification 4.6.A.3.e says: "During this test..." However, "this test" refers to the test specified in Technical Specification 4.6.A.3.b. The purpose of this proposed change is merely to place the specification in its logical location.

D. The purpose behind combining Technical Specifications 4.6.A.2.a and 4.6.A.2.b is to remove the words "accelerates to at least synchronous speed". The intended test is whether the machine is ready to accept load within 10 seconds of a start signal. We do not have an instrumented method of verifying that the machine has achieved synchronous speed and verification of that does not provide any necessary information.

E. There are two purposes associated with the relocation of existing Technical Specification 4.6.A.3.b.4 to 4.6.A.3.e. First is to clearly de-couple this test from the "Integrated Safety Injection Test", the test that Technical Specification 4.6.A.3.b is requiring. It is unnecessary to perform these two tests simultaneously and we have not interpreted the existing specification to require simultaneous performance and, by this change, will make the requirement more clear. The other purpose is to remove the requirement that both a loss of offsite power and a safety injection signal need to be simulated in order to verify that the diesel generator trips are automatically bypassed. Simulation of a safety injection signal is sufficient to automatically bypass the system trips.

F. The purpose for deleting the requirement to "Verify that the auto-connected loads do not exceed 3000 kw (Unit 2: 5100 kW)" is that this is not an appropriate surveillance requirement but rather a configuration management issue. During the performance of our integrated safety injection test as required by Technical Specification 4.6.A.3.b we observe and record the loads on the diesel generators and verify that they don't exceed 3000 or 5100 kW, however, this provides no meaningful information since the loads during the test are significantly less than during an actual event because of necessary differences in plant conditions (e.g., the pumps run at lower flow during the test conditions compared to actual event flow rates). We do maintain an load analysis which verifies that the diesel generators will not be overloaded during design basis events. Therefore, we meet the intent of the Technical Specification requirement by analysis but the verification performed during the physical test does not and cannot meet the intent of the specification.

Safety Evaluation and Determination of Significant Hazards Considerations

The proposed changes to the Operating License have been evaluated to determine whether they constitute a significant hazards consideration as required by 10 CFR Part 50, Section 50.91 using the standards provided in Section 50.92. This analysis is provided below:

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   Proposed changes A, B, C, D, and the first part of E are intended to

clarify the meaning of the existing specifications without changing the requirements. For this reason, these proposed changes to the Technical Specifications will not change the manner in which the plant is operated or maintained. These administrative changes, therefore, will have no effect on the probability or consequences of an accident previously evaluated.

The second part of E (verification of the bypass of diesel generator trips during a simulated safety injection signal vs concurrent safety injection and loss of offsite power signals) does not change the intended function which is to be tested but, rather, reduces the special conditions (temporary electrical jumpers to simulate the loss of offsite power) in which the plant needs to be placed in order to perform the test.

Proposed change F (removal of the verification that the auto-connected loads do not exceed 3000 or 5100 kW) does not reduce the assurance of the ability of the diesel generators to perform the accident mitigation functions since this verification is performed by other, more pertinent, means.

Therefore, these changes cannot increase the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   As stated above, the proposed changes will not cause a change in the way in which the plant is operated or maintained, except for the reduction of the special conditions in which the plant needs to be placed in order to test the bypass of the diesel generator trips. Therefore, these administrative changes will not create the possibility of a new or different kind of accident from any accident previously analyzed.

3. The proposed amendment will not involve a significant reduction in the margin of safety.

   As stated above, the proposed changes will not cause a change in the way in which the plant is operated or maintained, except for the reduction of the special conditions in which the plant needs to be placed in order to test the bypass of the diesel generator trips. Therefore, these administrative changes will not involve a significant reduction in the margin of safety.

Based on the reasons discussed above, we have concluded that the proposed change does not involve a significant hazards consideration.

Based on the evaluations described above, and pursuant to 10 CFR Part 50, Section 50.91, Northern States Power Company has determined that operation of the Prairie Island Nuclear Generating Plant in accordance with the proposed License Amendment Request does not involve any significant hazards considerations as defined by NRC regulations in 10 CFR Part 50, Section 50.92.

Environmental Assessment

Northern States Power has evaluated the proposed changes and determined that:

1. The changes do not involve a significant hazards consideration,

2. The changes do not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or

3. The changes do not involve a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR Part 51 Section 51.22 (c)(9). Therefore, pursuant to 10 CFR Part 51 Section 51.22(b), an environmental assessment of the proposed changes is not required.